

Screening Site Inspection

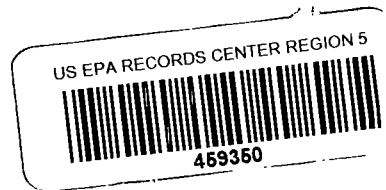
Site Safety Plan

for

Henry Hoffman Landfill

USEPA ID No. ILD 984 791 657

BVWST Project No. 70970



B&V Waste Science and Technology Corp.
101 North Wacker Drive, Suite 1100
Chicago, Illinois 60606
(312) 346-3775

Prepared By:

John J. Noyes
John J. Noyes

Date:

8-13-93

Reviewed By:

Richard M.H. McAvoy
Richard M.H. McAvoy

Date:

9-13-93

Approved By:

John T. Schill
John T. Schill

Date:

13 AUG 93NOTICE

B&V Waste Science and Technology Corp. (BVWST) produced this site safety plan for use on the specific project indicated herein. This site safety plan is not intended or represented to be suitable for use by others on the project, or for reuse on extensions of the project, or for use on any other project. Any use without written verification or adaption by BVWST will be at the user's sole risk and without liability or legal exposure to BVWST.

Contents

1.0	General Information	1
1.1	Site Management	1
1.2	Emergency Contacts	1
1.2.1	BVWST Emergency Contacts	1
1.2.2	Local Emergency Contacts	2
1.2.3	National Emergency Information	2
2.0	Site Characteristics	3
2.1	Facility Description and History	3
2.2	Storage/Disposal Methods	3
2.3	Physical Features and Unusual Conditions	3
3.0	Scope of Work	6
3.1	Summary of Previous Site Activities and Sampling Results	6
3.2	Planned Site Activities and Date	6
4.0	Hazard Evaluation	7
4.1	Chemicals of Concern	7
4.2	Physical Hazards	9
4.3	Biological or Radiation Hazards	9
4.4	Unusual Hazards	9
4.5	Groundwater Sampling Hazards	9
5.0	Personal Training and Protection	10
5.1	Training Requirements	10
5.2	Medical Monitoring Requirements	10
5.3	Fit Test Requirements	10
5.4	Personal Protective Equipment	10
5.5	Monitoring Requirements	11
5.6	Site Organization and Control	11
5.7	Initial Procedures	12
5.8	Required Work Limitations	13
5.9	Decontamination Procedures	13
5.10	Disposal Procedures	14
5.11	Safety Equipment	14
5.12	Confined Space Entry Procedures	14
5.13	Hazardous Waste Site Personnel Activity Report	14
6.0	Emergency Information	15
6.1	Emergency Route	15
6.2	Contingency Plan	15
6.2.1	Pre-Emergency Planning	15

Contents (Continued)

6.2.2	Emergency Recognition and Prevention	15
6.2.3	Site Security and Control	17
6.2.4	Evacuation Routes and Procedures	17
6.2.5	Emergency Decontamination	18
6.2.6	Emergency Medical Treatment and First Aid	18
6.2.7	Emergency Response Procedures	20
6.2.8	Critique of Response and Follow-up	20
7.0	Certification	21

Tables

Table 1	Chemicals of Concern	8
---------	----------------------------	---

Figures

Figure 1	Site Location Map	4
Figure 2	Site Layout	5
Figure 3	Route to Hospital	16
Figure 4	Evacuation Route Map	19

Attachments

Attachment A	Personal Protection	A-1
Attachment B	Working Environment Action Levels for Site Activities	B-1
Attachment C	Breathing Zone Action Levels for Site Activities	C-1
Attachment D	Site Organization	D-1
Attachment E	Decontamination Stations and Methods	E-1
Attachment F	Communication Systems	F-1
Attachment G	Work Practices for Temperatures in Excess of 70°F	G-1
Attachment H	Work Practices for Temperatures Less Than 40°F	H-1

1.0 General Information

1.1 Site Management

Client: U.S. Environmental Protection Agency (USEPA), Region V

USEPA Project Officer: Carl D. Norman (312) 886-5495

USEPA Work Assignment Manager: Alan Altur (312) 886-0390

B&V Waste Science Technology Corp. (BVWST) Project Manager:

Richard McAvoy (312) 346-3775

BVWST Field Team:

Leader: John Noyes

Safety Coordinator: John Noyes

Site Location: Rock Falls, Whiteside County, Illinois

Background Information from: USEPA, Illinois Environmental Protection Agency (IEPA)

1.2 Emergency Contacts

1.2.1 BVWST Emergency Contacts

Project Manager: Richard McAvoy

Phone: (312) 346-3775 (w)
(708) 394-4624 (h)

Director of Health and Safety (DHS) John T. "Jack" Schill

Phone: (913) 338-6595 (w)
(816) 224-2406 (h)

Medical Records: Chicago Regional Office

Barry Fischer, MD/U.S. Occupational Health, Inc.

Phone: (312) 641-1449 (w)

Worker's Compensation Administrator (WCA): Diane S. Mettenbrink

Phone: (913) 339-8561 (w)

Note: If a work-related injury or accident occurs, notify the WCA and the DHS as soon as possible after obtaining medical attention for the injured person. Notification must be made within twenty-four hours of the incident.

1.2.2 Local Emergency Contacts

Ambulance: 911
Police: 911
Fire: 911
Hospital: Community General Hospital
100 East LeFevre
Sterling, Illinois
61081-1279
(815) 625-0400
Poison Control Center: 1-800-252-2022
Regional USEPA: Alan Altur, Work Assignment Manager
Phone: (312) 886-0390
IEPA - DLPC: Tom Crause
Phone: (217) 782-6761

1.2.3 National Emergency Information

National Response Center: 1-800-424-8802
Center for Disease Control: (404) 488-4100
Chemtrec *: 1-800-424-9300
* Provides information to persons responding to accidents involving shipments of hazardous materials.

2.0 Site Characteristics

2.1 Facility Description and History

Figure 1 shows the general geographic location of the site and Figure 2 shows the physical layout of the site.

In the early 1970's three gravel pits were dug up on Henry Hoffman's property. The pit sizes were approximately one acre, two acres, and ten acres in size. Eventually the pits became filled with water.

In 1985 Henry Hoffman allowed local contractors to dispose of solid materials to the two smaller gravel pits. Materials disposed of at the landfill include drums of slaughter house waste, metal, wood, shingles, cement, road materials, and building demolition debris. Henry Hoffman did mention that occasionally unauthorized and undesirable wastes were dumped at the site.

In 1988 and 1989 the two smaller pits received closing fill, cover material, and vegetative growth. Three shallow monitoring wells were also installed onsite.

Currently the large ten acre gravel pit is a private fish pond for Henry Hoffman. Hay and/or alfalfa is grown in the area of the two smaller pits that were filled in.

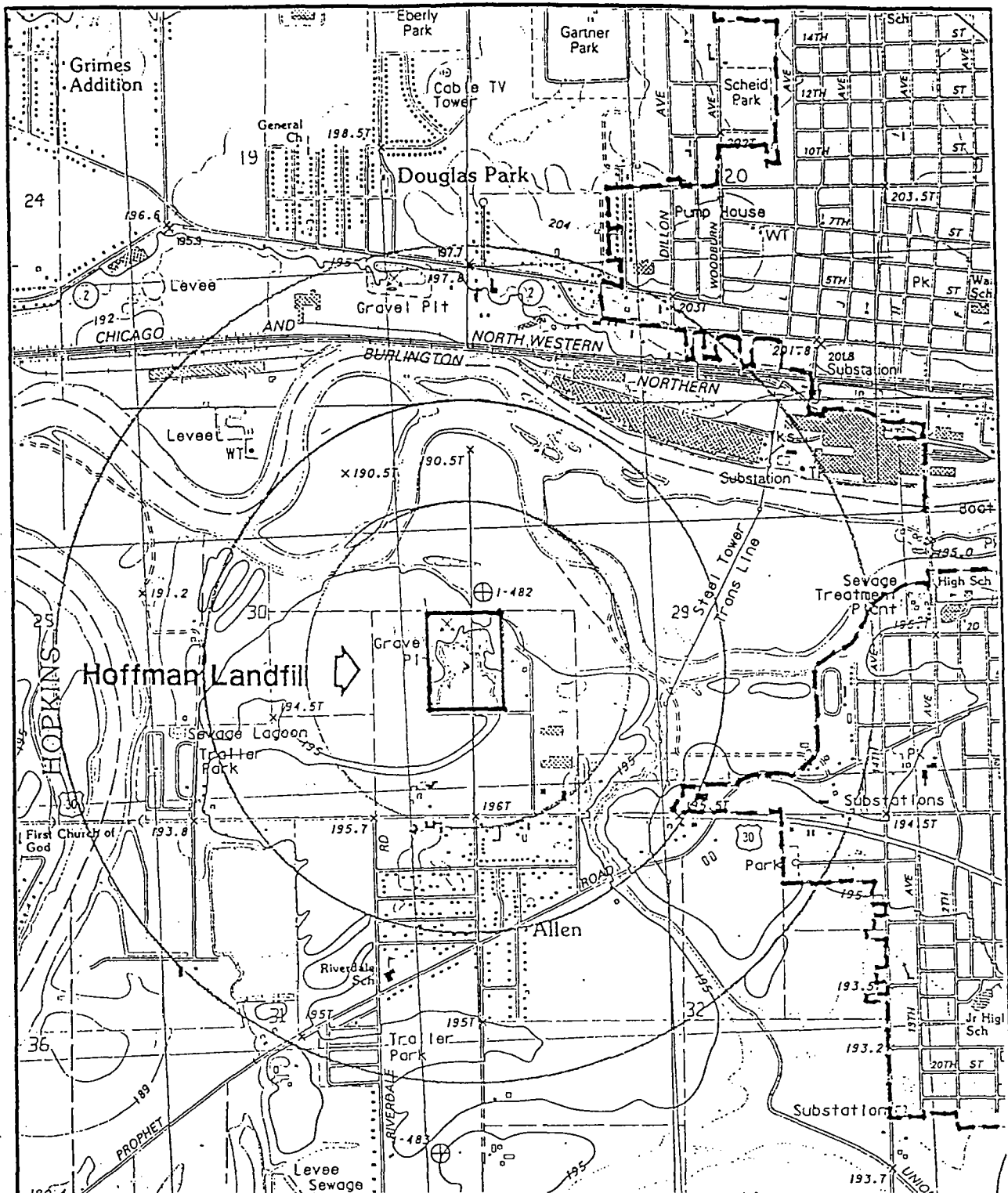
2.2 Storage/Disposal Methods

Wastes were deposited into two, unlined gravel pits with standing water. After approximately three years of dumping the pits were completely filled and covered.

2.3 Physical Features and Unusual Conditions

The large ten acre gravel pit is still present. The pit is filled with water and used for fishing. The banks or sides of the pit are very steep, almost vertical. Samples are scheduled to be taken from the bottom of the pit. Caution is advised when collecting these samples.

Sediment samples are also scheduled to be taken from the nearby Rock River. Caution is needed when working around a swift moving river. Especially during the current flood stages of the river.



Source:
USGS; 1982, 1983, 1985

Scale:
1 inch = 2,000 Feet

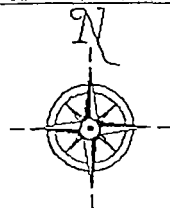
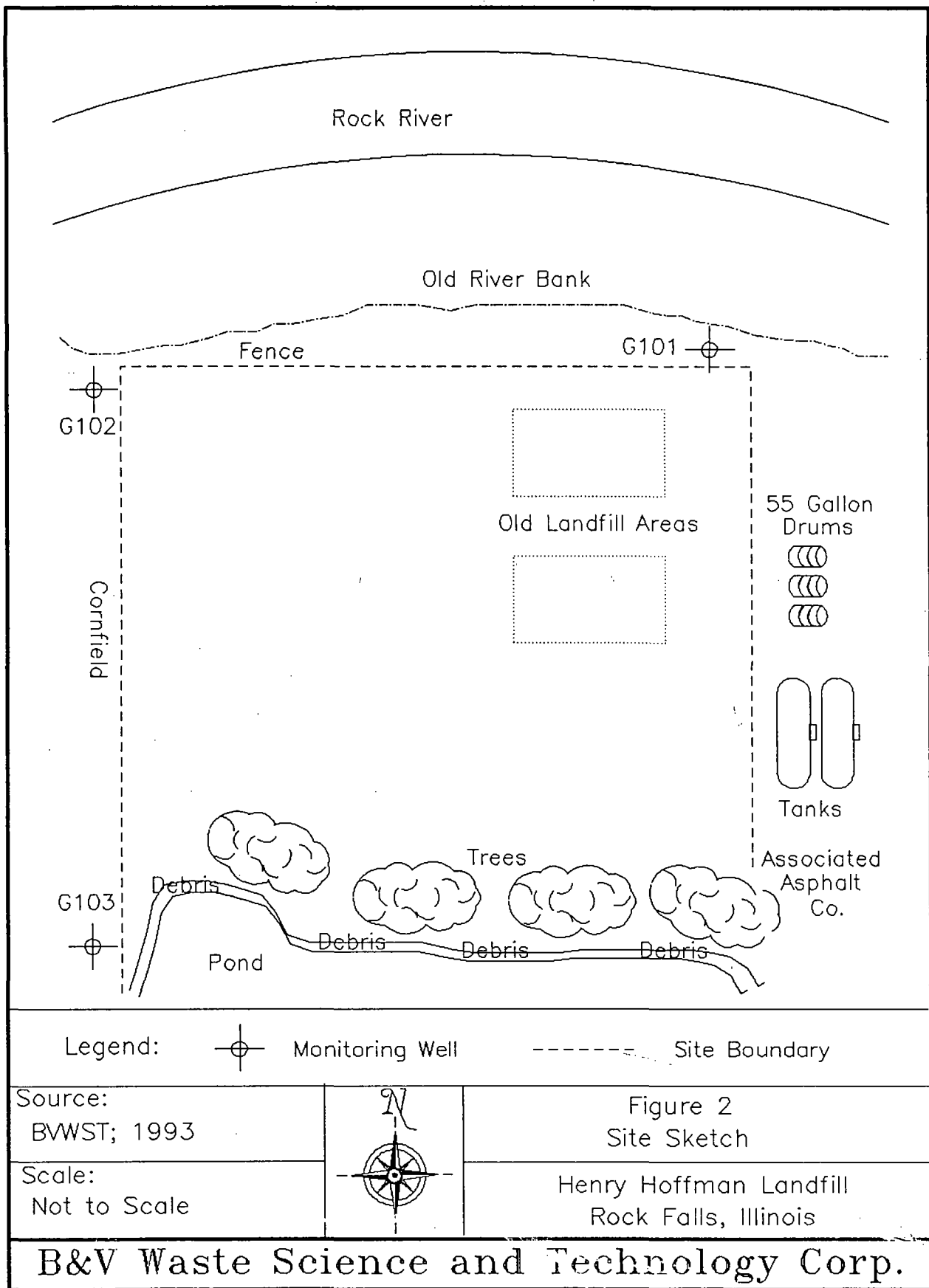


Figure 1
Site Location Map

Henry Hoffman Landfill
Rock Falls, Illinois

B&V Waste Science and Technology Corp.



3.0 Scope of Work

3.1 Summary of Previous Site Activities and Sampling Results

Three shallow groundwater monitoring wells were installed by August of 1989 and constructed by Willett Hoffman & Associates. The wells consisted of one background well, G101, and two downgradient wells, G102 and G103. Quarterly sampling results for the first year indicated calcium, chromium, magnesium, manganese, zinc and sulfate as being at significantly higher levels in the downgradient wells when compared to the upgradient (background) well. Sampling was performed by the Illinois Environmental Protection Agency. After one year of quarterly sampling and conducting a full Target Compound List/Target Analyte List analysis the sample analyses became less rigorous. Samples collected after 1990 were only analyzed for alkalinity, organic carbon, chloride, sulfate, and residue on evaporation. Downgradient well analyses indicated a decrease in alkalinity and residue on evaporation and an increase in sulfate content.

Table 1 describes the chemicals of concern.

3.2 Planned Site Activities and Date

To document the presence or absence of contaminants in the groundwater, surface water, and soil at the site a total of thirteen sample locations have been chosen. Four soil samples will be collected from across the site, five sediment samples will be collected, two from the onsite fish pond and three from the nearby Rock River, four groundwater samples will be collected, three from onsite monitoring wells and one from an adjacent asphalt company.

The sampling trip is currently scheduled for the week of August 23 through the 27th. This date is subject to change.

The number of BVWST personnel working onsite under this site safety plan (SSP) will be three or four. The number of working days onsite for these personnel is estimated at five to six days.

4.0 Hazard Evaluation

4.1 Chemicals of Concern

Table 1 lists the chemicals of concern onsite, and gives various data necessary to fully inform site workers of potential hazards and their particular effects. The source of information for their identification is (1) regulatory agency information supplied to BVWST, (2) chemical analyses made for or by the owner/operator or (3) other sources to be named. Notation is made of the routes by which a person may be exposed. We also report one or more of the following (1) the National Institute for Occupational Safety and Health (NIOSH) recommended exposure limits (RELs), which are time-weighted average (TWA) concentrations for up to a 10-hour workday during a 40-hour workweek; (2) the NIOSH short-term exposure limit (STEL), which is a 15-minute TWA exposure that should not be exceeded at any time during a workday; (3) the NIOSH ceiling REL, an exposure which may not be exceeded at any time; (4) the Occupational Health and Safety Administration (OSHA) permissible exposure limits (PELs), which are TWA concentrations that must not be exceeded during any 8-hour work shift of a 40-hour workweek; and (5) the American Conference of Governmental Industrial Hygienists (ACGIH) threshold limit value (TLV), which is an 8-hour TWA concentration.

The information on chemical hazards and effects on humans is gathered from the following sources:

- Handbook of Toxic and Hazardous Chemicals and Carcinogens, 2nd Edition, 1985.
- Dangerous Properties of Industrial Materials by N.I. Sax, Fifth Edition, 1979.
- Guide to Occupational Exposure Values, American Conference of Government Industrial Hygienists, 1992.
- Pocket Guide to Chemical Hazards, National Institute of Occupational Safety and Health, U.S. Department of Health and Human Services, June 1990.

Table 1 Chemicals of Concern				
Contaminant	Exposure Route	TWA Exposure Limits	IDLH	Hazard/Symptoms
Volatiles				
Chromium CAS # 7440-47-3	Inhalation, Ingestion	TLV: 0.5 mg/m ³ PEL: 1 mg/m ³	No IDLH	Histologic fibrosis of lungs, dermatitis, potential carcinogen
Manganese CAS # 7439-96-5	Inhalation, Ingestion	TLV: 5 mg/m ³ (0.2) mg/m ³ Intended Change	No IDLH	Parkinson's disease, asthenia, insomnia, mental confusion; metal fume fever; dry throat, cough, tight chest, dyspnea, rashes, flu-like fever; low-back pain; vomiting; malaise; fatigue
Zinc CAS # 1314-13-2 (Zn0)	Inhalation	TLV: 5 mg/m ³ PEL: 5 mg/m ³	No IDLH	Sweet metallic taste, dry throat, cough, chills, fever, tight chest, reduced pulmonary function, headache, blurred vision, muscular cramps, low back pain, nausea, vomiting, difficulty in breathing

4.2 Physical Hazards

During sampling activities there is a potential for slips, trips, and falls, especially when sampling the steep banks of the onsite fish pond and the Rock River.

To help prevent injury or loss of life when sampling the steep banks of the onsite fish pond and along the Rock River, samplers will be attached to a rope and harness which will be attached to a secure object. A third BVWST field person will be available to pull someone to safety if needed.

4.3 Biological or Radiation Hazards

No dangerous, wild, or domestic animals, poisonous plants, or venomous reptiles are known to exist onsite. The inadvertent disposal or use of radioactive substances at a site before general recognition of their pollution potential remains a possibility, especially for sites dating back to before 1950. Because reliable information can be obtained only by a survey with a radiation counter, the team will make such a survey of the site immediately after their arrival.

4.4 Unusual Hazards

No unusual happenings or installations are known to be present now or during the time of sampling that could pose any sort of a threat to the team.

4.5 Groundwater Sampling Hazards

A potential for exposure to concentrations of vapors accumulated beneath the cap of a monitoring well exists during groundwater sampling activities. The worker opening the well will stand upwind with his face away from the cap area and then inspect the well mouth with a flame ionization detector (FID) or a photo ionization detector (PID) to determine the presence of vapors before performing any groundwater sampling activities.

5.0 Personnel Training and Protection

5.1 Training Requirements

All personnel assigned to actively engage in hazardous waste operations at this site must present to the site safety coordinator (SSC) certification of successful completion, within the 12 months before the beginning date of site work, of a hazardous waste site investigation training or refresher course. The training must comply with applicable OSHA regulations found in 29 CFR 1910.120 et. seq. Presentation of the certification must occur before the worker departs for the site. All workers assigned to hazardous waste investigation will be currently certified in first aid and cardiopulmonary resuscitation. Company policy requires that the SSC complete an 8-hour supervisors training course and have at least six days of work experience at or above the planned level of protection before site field work begins.

5.2 Medical Monitoring Requirements

All personnel assigned to the hazardous waste investigation of this site must present to the SSC certification of completion, within the 12 months before the date site field work begins, of a comprehensive medical monitoring examination, which must comply with OSHA regulations in 29 CFR 1910.120 et seq. The certification must be signed by a medical doctor and must indicate (1) any work limitations placed on the individual and (2) the individual is capable of working while wearing respiratory protection equipment. Presentation of the certification must occur before the worker departs for the site.

5.3 Fit Test Requirements

All workers entering the exclusion or contamination reduction zones at a site where use of a full-face negative pressure respirator is necessary must have successfully passed a qualitative respirator fit test in accordance with OSHA 29 CFR 1910.134 within the preceding 12 months.

5.4 Personal Protective Equipment

All sampling activity at the site will be initiated with the personnel attired in Level D. Attachment A describes the degree of protection and items required in Level D. If a monitoring result or other observation indicates the potential

inadequacy of Level D, all team members will immediately withdraw to the designated rally point and reassess the site conditions.

5.5 Monitoring Requirements

Immediately upon initial entry by the sampling team, monitoring of the site will be carried out with the following equipment:

- A device capable of detecting the presence of organic vapors a PID or a FID.
- A device capable of detecting radioactivity.
- A device capable of detecting hydrogen cyanide gas.

Each of these devices will be calibrated immediately before initial use and recalibrated at the beginning of each successive day of use. The operation of the radiation meter will be checked with a check source.

The SSC will direct and supervise perimeter and general site monitoring, upwind and downwind, to establish background levels. Monitoring will take place as follows: during sampling, when contamination is noted by sight or odor, or at least every half hour.

The decision by the SSC to upgrade/downgrade the level of personal protective equipment will be based on concentrations detected in the breathing zone of workers and the indicated limits in Attachment C (Breathing Zone Action Levels).

Operation, maintenance, and calibration in accordance with the manufacturers requirements as described in the appropriate equipment manual of each instrument used onsite is the responsibility of the SSC.

If the release of contaminants could negatively impact the health and safety of inhabitants of the surrounding areas, the SSC will contact the local emergency response organization, the EPA and the DHS.

5.6 Site Organization and Control

Three general work zones will be established at each sampling location. These are the exclusion zone, contamination reduction zone, and support zone. Boundaries of these work zones will be established in the field by the SHSO.

The exclusion zone is defined as the area where contamination is either known or likely to be present, or because of activity, will provide a potential to cause exposure to personnel. Entry into the exclusion zone requires certification in training and medical monitoring in accordance with OSHA 29 CFR 1910.120.

The contamination reduction zone (CRZ) is the area where personnel conduct personal and equipment decontamination. It is essentially a buffer zone between contaminated areas and clean areas. Activities to be conducted in the CRZ will require personal protection as defined in the decontamination plan. Entry into the CRZ requires certification in training and medical monitoring in accordance with OSHA 29 CFR 1910.120.

The support zone is situated in clean areas where the chance to encounter hazardous materials or conditions is minimal. Personal protective equipment is therefore not required. The support zone will be established upwind of the exclusion zone.

An exclusion zone is necessary around all sampling locations and a ten foot exclusion zone radius around each sample location will be implemented. The contamination reduction zone will be organized at a selected location at the perimeter of the exclusion zone. All exclusion zone and contamination reduction zone boundaries will be clearly identified by either verbal communication, flagging, or fencing. The amount of employee and public traffic will dictate the level of zone identification. The more traffic present the more obvious the zone boundaries will be.

The implementation of a buddy system is mandatory for entry into an exclusion zone. A buddy system requires at least two people who work as a team, each looking out for the other. The purpose of the buddy system is to have two persons, each observing their partner for stress, checking the partner's protective clothing, notifying the support zone in the event of an emergency and providing assistance, if needed.

Successful communication between field teams and contact with personnel in the support zone is essential. Attachment F, the communication systems table, lists the communication systems that will be available during activities and emergencies at the site.

5.7 Initial Procedures

- Coordinate all site activities with the U.S. Environmental Protection Agency.
- Locate nearest available accessible telephone and a backup.
- Drive the selected route from site to nearest hospital.
- Confirm and post the emergency telephone numbers.
- Post the OSHA job safety and health protection poster.

- Hold safety briefing for all workers.
- Designate the vehicle to be used for emergencies.
- Determine prevailing wind direction.
- Perform initial site survey with the planned monitoring equipment.
- Establish the work zones.

5.8 Required Work Limitations

- Work is allowed only during daylight hours.
- All personnel will wear their TLD badges while onsite and traveling to and from the site.
- Work shall cease during any storm event exhibiting lightning and personnel shall enter vehicles.
- Air monitoring will occur as specified in plan.
- No worker may enter site with facial hair that would interfere with proper fit of respirator.
- No worker may wear contact lenses while onsite.
- While working in EZ or CRZ, the following rules apply:
 - No eating, drinking, or use of tobacco or cosmetics in this zone.
 - No horse play.
 - No matches or lighters in this zone.
 - Wear level of protection specified in SSP.
- While working in the EZ, the following rules apply:
 - Check in with SSC upon entering; check out with SSC upon exiting.
 - Implement the communications system.
 - All workers remain within sight of one another.

5.9 Decontamination Procedures

For Personnel: Refer to Attachment E for the step-by-step procedure for personnel decontamination planned for the site. Decontamination will be conducted in Level D protection.

For Equipment: All sampling equipment will be decontaminated using the following procedure:

- (1) Wash in a solution of biodegradable detergent, scrubbing with brush to remove adhering material, if necessary.
- (2) Triple rinse with tap water.

- (3) Triple rinse in deionized water.
- (4) Wrap all decontaminated equipment in foil.

5.10 Disposal Procedures

The disposal of decontamination wastes will follow procedures mandated by USEPA Region V.

Decontamination Wastes: Investigation-derived waste (IDW) must be disposed of onsite unless doing so will increase hazards. If IDW must be removed from a site, it will be placed in a landfill in accordance with Resource Conservation and Recovery Act guidelines under IEPA supervision. Spent decontamination soap/rinse solutions will be disposed of onsite at the sample collection points.

Contaminated PPE: Clothing not completely decontaminated onsite will be secured in plastic bags and removed from the site.

5.11 Safety Equipment

- Fire extinguishers, ten-pound ABC (one per vehicle).
- Eye-wash kits (15-minute capacity).
- First aid kits (one per vehicle).
- Blanket, one for each two workers.

5.12 Confined Space Entry Procedures

No confined space entries will occur during the activities at this site.

5.13 Hazardous Waste Site Personnel Activity Report

A hazardous waste site personnel activity report (Attachment H) will be filled out by the field team leader as a part of follow-up activities. The completed report will be sent to the BVWST Director of Health and Safety.

6.0 Emergency Information

6.1 Emergency Route

The nearest hospital is Community General Hospital which is located at 100 East LeFevre in Sterling, Illinois. To get to the hospital from the site: go east from the site's cable gate entrance to Anixter Rd., make a right and head south on Anixter Rd. to U.S. Route 30 (Rock Falls Road), make a left onto U.S. Route 30 and head east approximately two miles to State Route 88, make a left on State Route 88 and head north approximately two miles across the Rock River and into the town of Sterling to LeFevre Rd., make a right on to LeFevre Rd. and the Community General Hospital is on your left.

The location of and the described route to the hospital are shown on Figure 3.

6.2 Contingency Plan:

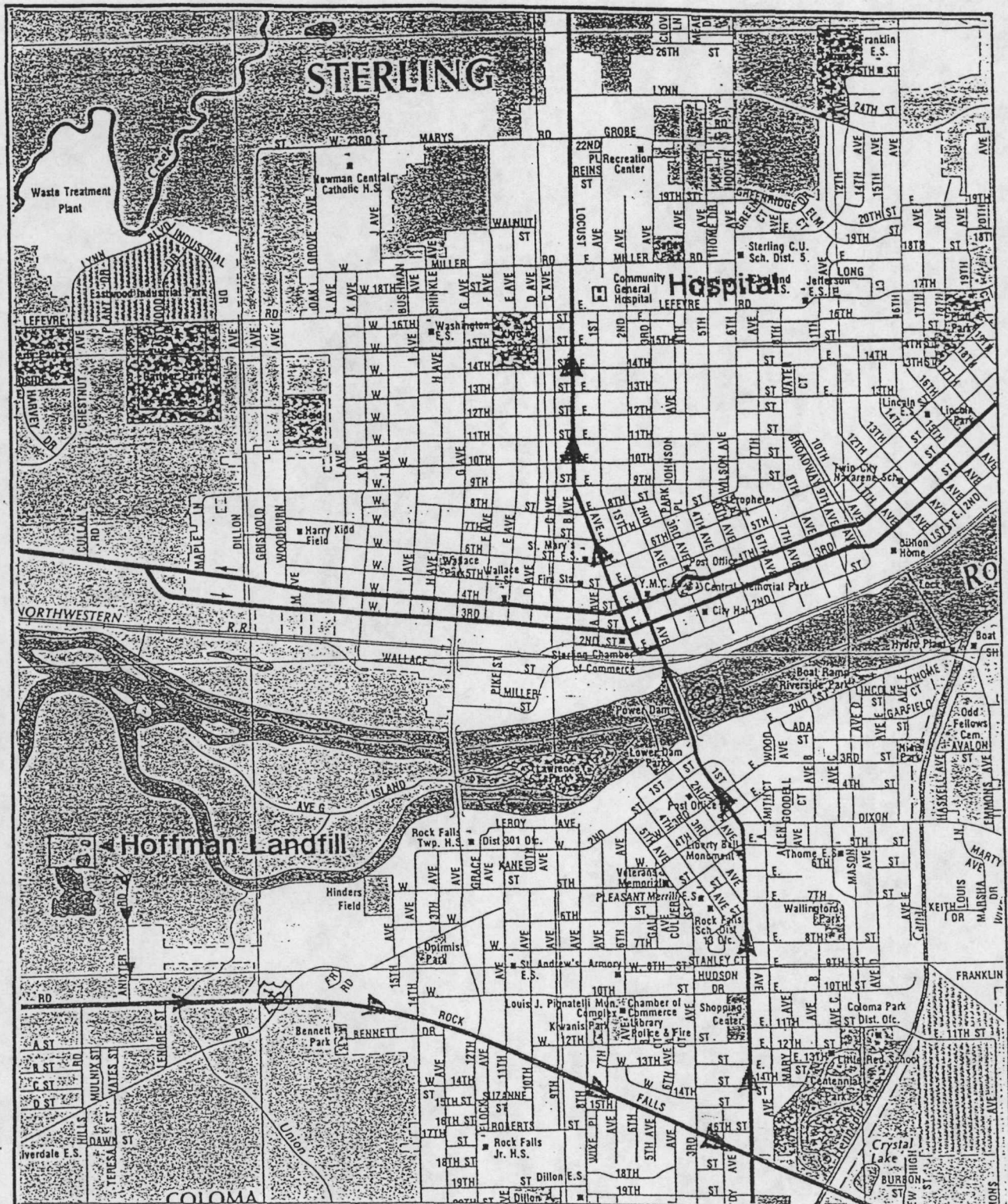
6.2.1 Pre-Emergency Planning

The SSC will also act as emergency coordinator and be responsible for initiating appropriate emergency procedures when required during site work. In the event of a work related injury, notification of the fact will be given to the SSC, the field team leader (FTL), the project manager (PM), and the DHS. The emergency coordinator is responsible for the following actions:

- Establish work zones and escape route.
- Designating the personnel who will respond to incipient fires or small spills and requirements for medical attention.
- Notifying the emergency response team for the locality.
- Assessing the emergency.
- Administering or directing first aid.
- Maintaining safety equipment.
- Posting emergency telephone numbers and map showing route to hospital.

6.2.2 Emergency Recognition and Prevention

All BVWST workers will bring to the attention of the SSC any unsafe condition, practice, or circumstance associated with or resulting from the field investigation. In cases of immediate hazard to the BVWST workers or the public,



Source:
Spectrum 1988

Scale:
2.25 inches = 1 mile



Figure 3
Route to Hospital

Henry Hoffman Landfill
Rock Falls, Illinois

B&V Waste Science and Technology Corp.

any employee on the scene will take all reasonable and safe steps to eliminate or neutralize the hazard. Subsequent consultation with the SSC, FTL, PM, and DHS will occur at the first opportunity. For such circumstances, the SSC will take those actions necessary to ensure the investigation can be safely completed. Such actions could be changes in procedure, consultation with appropriate experts, or obtaining a specialist. In instances where the hazard is not an immediate danger to the field team, the SSC may consult the Director of Health and Safety source regarding appropriate corrective measures.

If any team member is overcome, incapacitated, or traumatically injured onsite, the other team members will immediately call for assistance, don appropriate protective equipment, and make reasonable efforts to aid the affected person. At least one person will remain outside the problem area until help arrives. If removal of the affected person from the site is necessary, the buddy shall accompany him/her unless specifically forbidden by medical or police authority. If prudent, personnel decontamination will occur to the extent possible, but not at the expense of time needed to treat the affected person.

If it is known or suspected that the problem is due to chemical exposure, then all team members similarly exposed will proceed immediately, together, to the nearest appropriate medical facility. If personal contamination has occurred, all persons involved will make every reasonable effort to decontaminate themselves.

6.2.3 Site Security and Control

The site is unfenced, and is accessible on foot. A locked cable gate at the entrance to the site prohibits vehicles from entering. Non-involved persons are not expected to enter the site, and the site is inactive. The site safety coordinator will be responsible for granting access to the site and work zones.

6.2.4 Evacuation Routes and Procedures

Evacuation from the site will be accomplished by walking or driving to the east or west of the site and then move around the site perimeter to the rally point (Figure 4). Team members will assemble at the rally point which will be the cable gate entrance to the site along the east central edge of the site and await instructions from the SSC. The SSC will designate an evacuation route from each sampling area which will move workers away from the developed hazard in a safe, efficient manner and

permit effective access for fire/emergency vehicles during an emergency. The rally point will be upwind and at a safe distance from all areas of activity. The SSC is responsible for determining all personnel are present at the rally point. In the event of missing personnel, emergency response organizations will be notified immediately of the need for search and rescue. Personnel will remain at that area until an authorized individual provides further instructions.

6.2.5 Emergency Decontamination

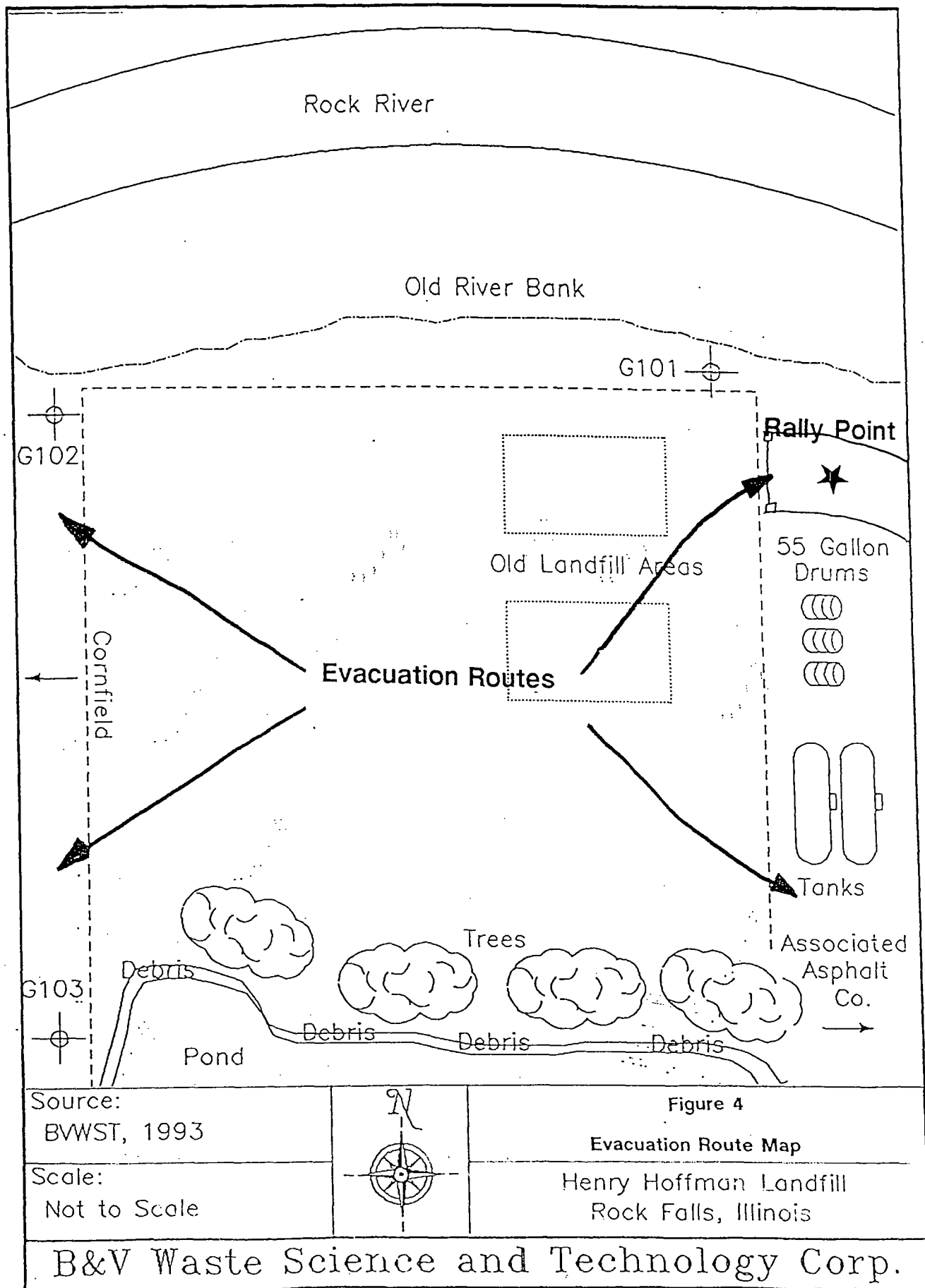
In addition to routine decontamination procedures, emergency decontamination procedures will be established. In an emergency, the primary concern is to prevent the loss of life or severe injury to site personnel. If immediate medical treatment is required to save a life, limited decontamination will be performed or the person will be wrapped in a blanket. If a worker has been contaminated with an extremely toxic or corrosive material that could cause severe injury or loss of life, decontamination will be performed immediately. If an emergency due to heat-related illness develops, protective clothing will be removed from the victim as soon as possible to reduce the heat stress. During an emergency, provisions will also be made for protecting medical personnel and disposing of contaminated clothing and equipment.

6.2.6 Emergency Medical Treatment and First Aid

All BVWST personnel conducting hazardous waste operations at the site will have successfully completed Red Cross sponsored courses in adult first aid and cardiopulmonary resuscitation. Before the start of work, the SSC will confirm the availability of medical facilities, ambulance service, and emergency personnel.

Onsite first aid equipment will consist of a 15-minute eye wash, location to be determined after establishing the command post, exclusion, and contamination reduction zones; a first-aid kit to be carried in each of the vehicles associated with the sampling event; a fire extinguisher located in each vehicle; and a wool blanket for each two workers. Further, an approved SSP will be kept in each vehicle, which includes a map to the hospital, and emergency telephone numbers for the local ambulance, hospital, poison control center, fire, and police.

If the SSC determines that a situation occurs which could threaten human health or the environment outside the facility, he will immediately notify the USEPA and appropriate local authorities.



Any onsite response teams will maintain direct contact with the emergency coordinator at all times. Hand signals will be utilized where radios are impractical or unsafe. Attachment F lists the hand signals most often used. The location of the nearest telephone will be determined and sampling team personnel notified.

6.2.7 Emergency Response Procedures

The field team will be responsible for responding to minor emergencies such as incipient fires, and minor first-aid problems. In the event of fire, spill, or other emergencies that cannot be controlled by onsite response personnel, all site personnel will evacuate to a predesignated zone. Site personnel will wait in the designated zone for further instructions from the SSC and/or emergency response personnel.

6.2.8 Critique of Response and Follow-up

A follow-up meeting will be held after any emergency situation to assess the actions taken. The meeting will be attended by the SSC and other individuals as appropriate. A record of the meeting will be kept by the SSC and sent to the BVWST DHS. Recommendations from the meeting will be incorporated into the future responses to emergency situations.

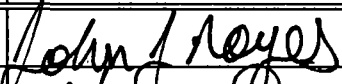
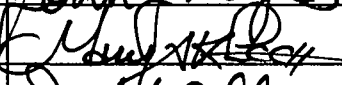
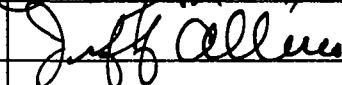
7.0 Certification

(Note: This page containing the original signatures of the team members will be retained by the SSC and incorporated into the project file copy of the SSP).

By my signature, I certify that:

1. I have read,
2. I understand, and
3. I will abide by

the site safety plan for the Henry Hoffman Landfill site.

Printed Name	Signature	Date	Affiliation
John Noyes		8/24/93	BVWST
MARY LEE		8/24/93	BVWST
JEFF ALBANO		8.24.93	BVWST

Attachment Contents

Attachment A	Personal Protection	A-1
Attachment B	Working Environment Action Levels for Site Activities	B-1
Attachment C	Breathing Zone Action Levels for Site Activities	C-1
Attachment D	Site Organization	D-1
Attachment E	Decontamination Stations and Methods	E-1
Attachment F	Communication Systems	F-1
Attachment G	Work Practices for Temperatures in Excess of 70°F	G-1
Attachment H	Work Practices for Temperatures Less Than 40°F	H-1
Attachment I	Hazardous Waste Site Personnel Activity Report	I-1

Attachment A

Personal Protection

Levels of Protection for Workers

The specific levels of protection and the necessary components for each have been divided into four categories according to the degrees of protection afforded:

Level A: Worn when the highest level of respiratory, skin, and eye protection is needed.

Note: No person can work at Level A without special training and written approval by the Director of Health and Safety.

Level B: Worn when the highest level of respiratory protection is needed, but a lesser level of skin protection is needed. Level B is the primary level of choice when entering a totally unknown environment.

Level C: Worn when the criteria for using air-purifying respirators are met and a lesser level of skin protection is needed.

Level D: Worn only as a work uniform and not in any area with respiratory or skin hazards. Level D provides minimal protection against chemical hazards.

Ensembles for the Respective Levels of Protection

Level B Personal Protective Equipment (PPE):

- Supplied-air respirator (Occupational Safety and Health Administration/National Institute of Occupational Safety and Health [OSHA/NIOSH] approved). Respirators may be positive pressure-demand, self-contained breathing apparatus, or positive pressure-demand, airline respirator (with escape bottle for immediately dangerous to life or health [IDLH] or potential for IDLH atmosphere).
- Saranex hooded chemical-resistant one-piece suit.
- Long cotton underwear (as applicable).
- Outer gloves, chemical-resistant (Nitrile - 11 mil).
- Inner gloves, chemical-resistant (Nitrile - 4 mil).
- Boots, chemical-resistant, steel toe and steel shank.
- Outer boot covers, chemical-resistant, disposable.
- Hard hat.
- Two-way radio communications (intrinsically safe) or equivalent.

Level C Personal Protective Equipment:

- Air purifying respirator (OSHA/NIOSH approved) with an organic vapor/acid gas/high efficiency particulate filter cartridge.
- Saranex chemical-resistant one piece suit.
- Outer gloves, chemical-resistant (Nitrile - 11 mil).

- Inner gloves, chemical-resistant (Nitrile - 4 mil).
- Boots, steel toe and steel shank, chemical-resistant.
- Outer boot covers, disposable, chemical-resistant.
- Hard hat.

Level D Personal Protective Equipment:

- Coveralls (tyvek).
- Boots, chemical resistant, steel toe and steel shank.
- Safety glasses with side shields or goggles.
- Hard hat (face shield optional).
- Outer gloves, chemical-resistant (Nitrile-11 mil).
- Inner gloves, chemical-resistant (Nitrile-4 mil).

Attachment B Working Environment Action Levels for Site Activities			
Environment	Instrument	Reading	Action
Organic Vapor Presence	OVA or HNu	Background	Level D
		Above background	Measure breathing zone (see Table 7-2)
Oxygen Amount in Air	O ₂ Meter (MSA 261)	< 19.5% O ₂	Level B. Explosive meter not valid at <10% O ₂
		19.5%-23% O ₂	SCBA not needed on basis of O ₂ content only
		> 23% O ₂	Evacuate. Explosive hazard. Consult with DHS
Explosion/Fire Danger	LEL Meter (MSA 261)	< 5% LEL	Continue activities. Measure breathing zone with OVA or HNu and LEL meter
		5-23% LEL	Identify and eliminate source. Continue activities. Measure breathing zone
		> 23% LEL	Evacuate. Explosion hazard. Consult with DHS
Radioactivity	Minirad Radiation Meter	Background	Continue activities
		Above background	Evacuate. Consult with DHS
Cyanide Gas	Monitox CN Meter	Any indication	Measure breathing zone. Consult with DHS
		No indication	Continue activities
H ₂ S Gas	MSTox H ₂ S	Any indication	Measure breathing zone. Consult with DHS
Respirable Dust	Mini-Ram Dust Meter	< 2 mg/m ³	Continue activities
		> 2 mg/m ³	Measure breathing zone
Noise	Noise Meter	< 85 dB(A)	No hearing protection required
		> 85 dB(A)	Hearing protection required

Attachment C
Breathing Zone Action Levels for Site Activities

Environment	Instrument	Reading	Action
Organic Vapor Presence	OVA or HNu	< 5 ppm above background	Level C with appropriate cartridges
		5 ppm above background to 500 ppm	Level B
		> 500 ppm	Evacuate. Consult with DHS
Oxygen Amount in Air	O ₂ Meter (MSA 261)	< 19.5% O ₂	Level B. Explosive meter not valid of <10% O ₂
		19.5%-23% O ₂	SCBA not needed on basis of O ₂ content only
		> 23% O ₂	Evacuate. Explosive hazard. Consult with DHS
Explosion/Fire Danger	LEL Meter (MSA 261)	< 10% LEL	Continue activities
		> 10% LEL	Evacuate. Consult with DHS
Cyanide Gas	Monitor CN Meter	Any indication	Evacuate. Consult with DHS for authorization to re-enter at Level B
Hydrogen Sulfide Gas	MSA 361	No indication	Continue activities
		< 5 ppm	Level D. Monitor breathing zone constantly
		> 5 ppm	Level B
Respirable Dust	Mini-Ram Dust Meter	< 2 mg/m ³	Continue activities
		2 mg/m ³ to 10 mg/m ³	Use of respirator with appropriate dust filters
		> 10 mg/m ³	Evacuate. Consult DHS

Attachment E
Decontamination Stations and Methods

Station	Equipment	Decontamination Methods	Disposal Methods
1	Tools, sampling devices, etc.	Wash & rinse with damp wipe when necessary.	Wash water disposed onsite.
2	Boot covers and outer gloves.	Wash and rinse if visibly soiled.	Dispose in plastic garbage bags in a landfill.
3	Tyvek and inner gloves.	Wash and rinse if visibly soiled.	Dispose in plastic garbage bags in a landfill.
4	Hands and face.	Field wash with soap and water.	Water disposed onsite.
5	Body.	Shower immediately following end of shift.	

Attachment F Communication Systems		
Communication	Signal	Definition
Audible Internal Communications (whistle, vehicle horn, personal air horn)	One long blast	Evacuate area
	Two short blasts	Localized problem, be on the alert
	Two long blasts	All clear, re-entry permitted
	Three short blasts	Cease work operations
Visual Internal Communications (hand signals)	Hands clutching throat	Out of air / cannot breathe
	Hands on top of head	Need assistance
	Thumb(s) up	OK / I am all right / I understand
	Thumb(s) down	No / negative
	Arms waving upright	Send backup support
	Grip partners wrist	Exit area immediately
	Cross arms above head	Cease work operations

<p style="text-align: center;">Attachment G Work Practices For Temperatures in Excess of 70°F</p>

Heat Stress Monitoring

Heat stress poses a serious health danger to site workers and may create secondary safety hazards by impairing a worker's coordination and judgement. Heat stress can occur at almost any temperature and is more likely when personal protective equipment (PPE) is in use.

PPE use may create heat stress. Monitoring of personnel will commence when the ambient temperature is 70°F or above. Table G-1 presents the suggested frequency for such monitoring. Monitoring frequency is dependent on the type of protection worn (permeable or impermeable clothing), the dry bulb temperature, and the amount of sunshine. Monitoring frequency should increase as the ambient temperature increases or as slow recovery rates are observed. Heat stress monitoring should be performed by a person with a current first aid certification who is trained to recognize heat stress symptoms. For monitoring the body's response to excess heat, one or more of the following techniques will be used.

Heat rate. Count the radial pulse before site activities and during a 30-second period as early as possible in the monitoring cycle.

- If the heart rate exceeds 110 beats per minute at the beginning of the rest period, shorten the next cycle by one-third and keep the rest period the same.
- If the heart rate still exceeds 110 beats per minute at the next rest period, shorten the following cycle by one-third.

Oral temperature. Use a clinical thermometer (three minutes under the tongue) or similar device to measure the oral temperature before site activities and at the end of the monitoring cycle (before the worker drinks liquid).

- If oral temperature exceeds 99.6°F (37.6°C), shorten the next work cycle by one-third without changing the rest period.
- If oral temperature exceeds 99.6°F (37.6°C) at the beginning of the next rest period, shorten the following cycle by one-third.
- Do not permit a worker to wear a semi-permeable or impermeable garment when oral temperature exceeds 100.6°F (38.1°C).

Prevention of Heat Stress

Proper training and prevention measures will aid in adverting loss of work production and serious illness. Heat stress prevention is particularly important because once a person suffers from heat stroke or heat exhaustion that person may be predisposed to additional heat-related illnesses. To avoid heat stress, the HO has the authority to take the following steps.

- Adjust work schedules:
 - Modify work/rest schedules according to monitoring requirements.
 - Mandate work slowdowns as needed.
 - Perform work during cooler hours of the day, if possible, or at night if adequate lightning can be provided.

Table G-1 Suggested Frequency of Physiological Monitoring for Fit and Acclimatized Workers ^a		
Adjusted Temperature ^b	Normal Work Ensemble ^c	Impermeable Ensemble ^d
90°F (32.2°C) or above	After each 45 minutes of work	After each 15 minutes of work
87.5 to 90°F (30.8 to 32.2°C)	After each 60 minutes of work	After each 30 minutes of work
82.5 to 87.5°F (28.1 to 30.8°C)	After each 90 minutes of work	After each 60 minutes of work
77.5 to 82.5°F (25.3 to 28.1°C)	After each 120 minutes of work	After each 90 minutes of work
72.5 to 77.5°F (22.5 to 25.3°C)	After each 150 minutes of work	After each 120 minutes of work
^a For work levels of 250 kilocalories/hour. ^b Calculate the adjusted air temperature (ta adj) by using the equation: ta adj °F + (13 x [% ÷ 100] sunshine). Measure air temperature (ta) with a standard mercury-in-glass thermometer with the bulb shield from radiant heat. Estimate percent sunshine by judging what percent of the time the sun is not covered by clouds that are thick enough to produce a shadow (100% sunshine = no cloud cover and a sharp distinct shadow; 0% sunshine = no shadows). ^c A normal work ensemble consists of cotton coveralls. ^d An impermeable ensemble consists of tyvek coveralls.		

- Provide shelter (air-conditioned, if possible) or shaded areas to protect personnel during rest periods.
- Maintain worker's body fluids at normal levels. This is necessary to ensure that the cardiovascular system functions adequately. Daily fluid intake must approximately equal the amount of water lost in sweat, e.g., eight fluid ounces (0.23 liters) of water must be ingested for every eight ounces (0.23 kg) of weight loss. The normal thirst mechanism is not sensitive enough to ensure that enough water will be drunk to replace lost sweat. When heavy sweating occurs, workers will be encouraged to drink more. The following strategies may be useful:
 - Maintain water temperatures at 50 to 60°F (10 to 16.6°C).

- Provide dedicated personal bottles or containers that hold about one quart of water.
- Allow dedicated personal bottles of water in the work area.
- Direct workers to drink 16 ounces (0.5 liters) of fluid (preferably water or diluted drinks) before beginning work.
- Urge workers to drink a cup or two of fluid every 15 to 20 minutes, or at each break. A total of 1 to 1.6 gallons (4 to 6 liters) of fluid per person per day are recommended, but more may be necessary to maintain body weight.
- Maintain an additional water source outside the contamination reduction zone.
- Train workers to recognize symptoms of heat-related illnesses.
- Provide a source of water available to spray down a person as a measure of preventing heat stress.

The following table provides signs and symptoms of heat stress types in order of increasing severity:

Type	Symptoms	Treatment
Heat Related Illness	Localized redness of skin and reduced sweating; reduced tolerance to heat.	Keep skin clean and dry.
Heat Cramps	Muscle spasm and pain in extremities and abdomen.	Remove person to cool area. Give small amounts of salted water.
Heat Exhaustion	Weak pulse; shallow breathing; pale, cool, moist skin; profuse sweating; dizziness; fatigue.	Remove person to cool area, reduce body temperature. Cool by convection. Give small amounts of salted water. Do not allow person to become chilled.
Heat Stroke	Red, hot, dry skin; body temperature of 105°F or greater; nausea; dizziness; confusion; strong rapid pulse; coma. Convulsions may occur.	Seek medical attention immediately. Get victim cool quickly, wrap in wet cloth or immerse in cool water. Fan vigorously during transport to hospital. Apply cold packs, if available, avoiding direct contact between skin and pack/ice.

Heat stroke is a life-threatening heat disorder that requires life-saving first aid. Decontamination should be omitted.

Heat stress can become life threatening. Unless the victim is grossly contaminated, decontamination should be omitted or minimized and treatment begun immediately.

<p>Attachment H</p> <p>Work Practices For Temperatures Less Than 40°F</p>

Excessive exposure to low environmental air temperatures or immersion in low temperature water are usually fatal unless quickly remedied. Workers must be protected from exposure to cold so that the deep core temperature of the body does not fall below 96.8°F.

Pain in the extremities may be the first early warning of danger to cold stress. Severe shivering may occur if the body temperature drops to 95°F. Workers exhibiting signs of cold stress or hypothermia must get to a warm area until they are safely able to resume their duties.

Summary of American Conference of Governmental Industrial Hygienists Guidelines

When the work environment temperature is less than 40°F, workers will:

- Wear adequate insulating dry clothing to maintain core temperatures above 96.8°F. The outer layer should be wind - and water-proof.
- Remove and replace any clothing that becomes wet.
- Cover hands and head appropriately, at all times.
- Wear mittens for temperatures less than 0°F.
- Avoid contact of metal items with bare flesh.
- Make insulated coveralls or a warm area available during doffing to counter wet undergarments.

In addition to the above described protective measures, the site safety coordinator shall monitor workers for signs of cold stress and hypothermia.

Attachment I

Hazardous Waste Site Personnel Activity Report